



Emergency Response and Removal Branch Site Safety Briefing – Flood Waters

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Background

Flooding can cause the disruption of water purification and sewage disposal systems as well as the release of oil and hazardous substances. Exposure to floodwater can cause sickness in workers. Floodwater often contains infectious organisms such as *E. coli*, *Salmonella*, *Shigella*, Hepatitis A Virus, fecal coliforms and tetanus. Untreated sewage, oil, and hazardous substances also may contaminate floodwaters. Exposures to responders may occur via a cut or puncture wound; through mucous membranes (eye, nose, mouth); and through non-intact skin (dermatitis/rashes, injuries, abrasions).



Prior to Deployment

An annual medical screening and clearance must be completed. It is recommended that all responders receive the Hepatitis A, Hepatitis B and Tetanus vaccinations before responding to a natural disaster. The Hepatitis A vaccination involves an initial inoculation followed by a second one six months later. The Hepatitis B vaccination involves an initial inoculation followed by a second 30 days later and a third six months later. A Hepatitis B declination form must be completed by the responder if they choose not to receive the vaccination. Responders should have received the Tetanus vaccination within the past five to ten years.

Protective Measures

A minimum of Level D personal protective equipment is required when working around floodwaters. In general, avoid wading or walking through floodwaters. Modified Level D protection is required if responders need to walk or wade through floodwaters. Always don a pair of safety glasses or goggles (liquid splash hazards). Infectious organisms can enter your body through the eyes and mucous membranes. Tasks that involve hazardous substances and oil will require additional protection. Consider respirator protection if working with materials that are contaminated with mold and mildew.

Level D

- Safety Glasses or goggles (liquid splash hazards)
- Leather Gloves and Chemical Protective Gloves (as needed)
- Long sturdy pants or coveralls
- 6-9 inch Steel/Composite Toe and Shank Boots
- Hi-Visibility Vest
- Hard Hat (as needed)
- PFD (if working within 10 feet of any shoreline or standing water)



Modified Level D

- Safety Glasses or goggles
- Leather Gloves and Chemical Protective Gloves (as needed)
- Long sturdy pants or coveralls
- Waterproof steel/composite toe and shank rubber muck boots or hip waders.
- PE Tyvek or Sarenex Suit (as needed)



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- Hi-Visibility Vest
- Hard Hat (as needed)
- PFD (if working within 10 feet of any shoreline or standing water)



Decontaminate and disinfect hip waders, muck boots, and any equipment to remove the floodwater contamination. It is important to wash your hands with soap and clean, running water, especially before work breaks, meal breaks, and at the end of the work shift. Workers should assume that any water in flooded or surrounding areas is not safe unless specifically declared to be safe. Waterless hand sanitizer should be used if there is no access to clean water.

Decrease the risk of mosquito and other insect bites by wearing long-sleeved shirts, long pants, and by using insect repellants.

Tips to Remember

- Consider all water unsafe until local authorities announce that the public water supply is safe.
- Cover all non-intact skin such as cuts and open wounds with a waterproof bandage.
- Do not use contaminated water to wash and prepare food, brush your teeth, wash dishes, or make ice.
- Keep an adequate supply of safe water available for washing and potable water for drinking.
- Be alert for chemically contaminated floodwater at industrial sites.
- Use extreme caution with potential chemical and electric hazards, which have great potential for fires and explosions. Floods have the strength to move and/or bury hazardous waste and chemical containers far from their normal storage places, creating a risk for those who come into contact with them.
- If the safety of a food or beverage is questionable, throw it out.
- Seek immediate medical care for all animal bites.
- Be aware of possible structural damage in your work area. Floods may have caused hidden damage to roadways, bridges, buildings, etc. DO NOT drive through standing or moving water on roadways!

Signs and Symptoms

The signs and symptoms experienced by the victims of microorganisms are similar, even though they are caused by different pathogens. These symptoms include skin rashes, nausea, vomiting, diarrhea, abdominal cramps, muscle aches, and fever.

Although different chemicals cause different health effects, the signs and symptoms most frequently associated with chemical poisoning are headaches, skin rashes, dizziness, nausea, excitability, weakness, and fatigue.

What to do if Symptoms Develop

If responders experience any of the signs or symptoms listed above, appropriate first-aid treatment and medical advice must be sought. Notify your supervisor and Health & Safety Manager, and complete the necessary workers compensation and accident forms as soon as possible after seeking treatment. If the skin is broken, particularly with a puncture wound or a wound in contact with potentially contaminated material, a tetanus vaccination as well as specialized medical care may be needed. Do not hesitate to seek medical care even if the injury is small or minor. Also, EPA requires that all exposures and injuries, no matter how small, be reported.



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Guidance on the reporting process is found at <http://intranet.epa.gov/ohr/benefits/workerscomp/disease.htm>.